Editor’s Column

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Darkness cannot drive out darkness; only light can do that. Hate cannot drive out hate; only love can do that.

Martin Luther King, Jr.

Editorial Letter

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Here we are in a new year, which will hopefully bring new advancements to the journal, but most certainly it will also impose additional challenges before us. I will keep it quiet for now and leave some important announcements for the end of year. However, you will notice that we redesigned the front page of the hard-copy and also registered an e-ISSN for better coverage of the journal’s online content.

In this volume, we bring four papers that report original research results in the field of sensor modeling, antenna design, and power electronics.

In the first paper, entitled “Mathematical Model and Practical Implementation of Transformer Oil Humidity Sensor,” the authors, V. F. Hraniak, V. A. Matviychuk, and I. M. Kupchuk, developed a mathematical model for transformer oil humidity sensor. They also proved experimentally that the total relative error, which is introduced by the model, does not exceed 2%.

The second study, entitled “Designing and Implementing a Microstrip Antenna on LoRa Frequency for Smart Meter Communication,” by P. Wounchoum, A. Kongsavat, and C. Karupongsiri, describes a design of micro-strip antenna (MSA), which is used afterwards for developing a new path loss model for LoRaWAN infrastructure in urban areas. The obtained results show that proposed MSA is comparable to commercial solutions in a 2.2 km range, with packet delivery ratio reaching 52.93%.

The third paper, “Design and Simulation of a Power System Composed of Grid-Tied Five-Level Inverter with LCL Filter,” authored by O. Elamri, A. Oukassi, A. E. T. Maamar, and L. El Bahir, presents the analysis, design, and simulation of a power system composed of grid-tied single-phase five-level inverter with an LCL filter. The authors provide theoretical analysis of the proposed design, which is further verified using simulations in MATLAB/Simulink environment. The obtained results indicate that the total harmonic distortion of grid-current is less than 0.2%, which is in line with the international standards.

Finally, the paper “Direct Torque Control of Induction Motor with Stator Flux Estimation Based on an Improved Voltage Model,” by A. Belbali and S. Makhloufi, proposed a solution for improving the stator flux estimator by introducing a fractional order integrator to estimate the flux at low-speed. The proposed solution does not require additional hardware, it is not computationally intensive, and provides accurate results. The authors demonstrated its operation on dSPACE 1104 platform.

I thank the authors for their contribution to this issue of the journal and to all the reviewers who participated in the editorial process by providing valuable comments in timely manner to the editors and authors.